

COMPARISON BETWEEN *Cucumis melo* PEELS BIOSORPTION ON DIFFERENT TYPES OF HEAVY METAL

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TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATION	viii
ABSTRACT	ix
ABSTRAK	x
 CHAPTER 1: INTRODUCTION	
1.1 Background Study	1
1.2 Problem Statement	2
1.3 Significance of Study	3
1.4 Objectives of the Study	4
 CHAPTER 2: LITERATURE REVIEW	
2.1 Honeydew melon (<i>Cucumis melo</i>) as biosorbent	5
2.2 Heavy metal contamination in pipeline system	9
2.3 Impact of heavy metal on health	9
2.4 Factor affecting biosorption of heavy metal	11
2.4.1 Agitation speed	11
2.4.2 Temperature	11
2.4.3 Biosorbent Concentration	12
2.4.4 Metal Concentration	12
2.4.5 Biosorbent dosage	13
2.4.6 Particle size	13
2.5 Biosorption mechanism	14
2.5.1 Transport across the cell membrane	15
2.5.2 Ion-exchange	15
2.5.3 Complexation	16
2.5.4 Precipitation	16
2.5.5 Physical adsorption	16
2.6 Summary of biosorption by different fruit waste	17

CHAPTER 3: METHODOLOGY	
3.1 Materials	18
3.1.1 Raw materials	18
3.1.2 Chemicals	18
3.1.3 Apparatus	18
3.2 Methods	19
3.2.1 Sample collection	19
3.2.2 Extraction of <i>Cucumis melo</i> peel and seed	19
3.2.3 Characterization by using FT-IR	19
3.2.4 Preparation of biosorbent	20
3.2.5 Preparation of synthetic heavy metal solution	21
3.2.6 Preparation of heavy metal solution for calibration purpose	22
3.2.7 Screening between heavy metal	22
3.2.8 Optimization experiment	23
3.2.9 Batch adsorption experiment	24
3.2.10 Determination of heavy metal adsorption by UV-VIS	25
3.3 Statistical analysis	
 CHAPTER 4: RESULTS AND DISCUSSION	
4.1 FT-IR Analysis of <i>Cucumis melo</i> peels	26
4.2 Screening on different types of heavy metal using <i>C.melo</i>	28
4.3 Optimization of copper adsorption	29
4.3.1 Effect of agitation speed	29
4.3.2 Effect of temperature	30
4.3.3 Effect of biosorbent dosage	32
4.4 Batch adsorption experiment	33
 CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS	
	35
 CITED REFERENCES	36
APPENDICES	41
CURRICULUM VITAE	54

ABSTRACT

COMPARISON BETWEEN *cucumis melo* PEELS BIOSORPTION ON DIFFERENT TYPES OF HEAVY METAL

Honeydew melon (*Cucumis melo*) is one type of fruits that are cultivated worldwide known to have potential to eliminate heavy metal such as lead, zinc and copper from polluted groundwater by biosorption process. The objectives of this experiment is to compare the effectiveness biosorption of *C.melo* peel on different types of heavy metal and determine the removal percentage of heavy metal ions from aqueous solution by using *C.melo* peel as biosorbent. The method use in this experiment were screening process between heavy metal, optimization experiment by using 3 types of parameter (agitation speed, temperature and dosage) and batch adsorption to find the most optimum percentage removal of heavy metal and the rate of removal per minutes. The results of this study showed that the screening of heavy metal which using *C.melo* were able to remove copper ion (Cu^{2+}) which is the highest percentage (54.50%) as compared to lead ion (Pb^{2+}) and zinc ion (Zn^{+}) which are 48.94% and 4.47% respectively. From the data gained, copper has been chosen to be the best removal using *C.melo* with the ANOVA p-value is equal to 0.000 (p-value<0.05). Optimization experiments showed the best parameter were agitation speed (100rpm), temperature (50°C) and biosorbent dosage (0.08g). After that, all the optimized parameter was used in batch sorption trial and gains the highest percentage removal at 41.28% at 60 minutes. As conclusion, *C.melo* has the greatest removal potential for heavy metal removal.